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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,770	04/02/2004	Tatsuyuki Yamamoto	056208.53949US	9950

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CROWELL & MORING LLP
INTELLECTUAL PROPERTY GROUP
P.O. BOX 14300
WASHINGTON, DC 20044-4300

EXAMINER	
SPISICH, GEORGE D	
ART UNIT	**PAPER NUMBER**
3616	

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/815,770	YAMAMOTO ET AL.	
	Examiner	Art Unit	
	George D. Spisich	3616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 13-15* is/are rejected.

7)☒ Claim(s) *12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 April 2004;17 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/4/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:
(1) if a machine or apparatus, its organization and operation;
(2) if an article, its method of making;
(3) if a chemical compound, its identity and use;
(4) if a mixture, its ingredients;
(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

The abstract of the disclosure is objected to because the Abstract is improperly written in multiple paragraphs. An abstract should be a single paragraph.

Also, in line 1, the term "new" should be deleted.

Correction is required. See MPEP § 608.01(b).

Claim Objections

Claims 11 and 15 objected to because of the following informalities:

In claim 11, line 10, "motors o the" should be - - motors on the - -.

In claim 15, line 7, "motor with at" does not read properly.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 5, line 6, the term "beforehand" is unclear.

Throughout claim 11, there is the limitation "front side" and "rear side". It is unclear whether Applicant's is intending to claim a front or rear of a vehicle or a front/rear side (such as a corner).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,8 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over FR 2 726 231 in view of EP 0 931 684.

FR '231 discloses a suspension for a vehicle comprising an electric motor associated with a vehicle wheel, and an arm for suspending a car body, wherein one end of the arm is fixed to the car body with a pivot to perform a swing motion in a longitudinal direction of the car body, another end of the arm is connected to the output shaft of the motor so as to rotate relatively to the output shaft and at a "bearing mechanism".

Inherently, the arrangement of FR '231 includes a "control" device for the electric motor. This device increases speed and torque related to the wheel. This control device would inherently alter the angle of a longitudinal suspension arm as speed and torque are varied.

With respect to claim 8, absent any interrelated control, the inclusion of known sensors in a suspension arrangement is well known in the art.

However, FR '231 does not disclose a "wheel – in" electric motor.

EP '684 discloses a suspension arrangement having an electric motor within the wheel. This arrangement is compact and simplified as it requires less transmission elements.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the suspension arrangement of FR '231 so as to provide an electric motor within the wheel as taught by EP '684 to provide a compact, simplified arrangement.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over FR '231 in view of EP '684 as applied to claims 1,8 and 13-15 above, and further in view of Mineck (USPN 2,895,741).

FR '231 in view of EP '684 have been discussed in the previous rejection.

However, a swing control mechanism or a spring for a shown absorber and a damper are not shown.

Mineck discloses a vehicle suspension of the longitudinal swinging suspension arm type. There is disclosed a spring and a damper provided "at the pivot" of the suspension arm for controlling the swing motion of the longitudinal arm during traveling of the car. The spring is a coil spring (19) is arranged around the pivot so as to be twisted against the swing motion of the arm. The load of the spring is inherently applied "beforehand".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the suspension arrangement of FR '231 in view of EP '684 by providing a spring and damper arrangement as taught by Mineck so as to provide improved damping of the motion of the suspension arm.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over FR '231 in view of EP '684 as applied to claims 1,8 and 13-15 above, and further in view of Smith (USPN 4,736,965).

FR '231 in view of EP '684 does not disclose a spring and a damper provided between the arm and the car body.

Smith discloses a longitudinally swinging suspension arm arrangement having a damper and a spring for a shock absorber (related to the valving of the damper) provided between the suspension arm and the car body. This provides an effective means of absorbing shock and vibration encountered during traveling.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the suspension arrangement of FR '231 in view of EP '684 so as to provide a spring and damper arrangement provided between the arm and the car body as taught by Smith, so as to enhance the shock and vibration absorbing characteristics of the suspension.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over FR '231 in view of EP '684 as applied to claims 1,8 and 13-15 above, and further in view of Zetterstrom (USPN 6,386,553).

FR '231 in view of EP '684 does not disclose a wheel having a built-in brake unit driven by an electric signal.

Zetterstrom discloses a suspension of a vehicle wheel having a wheel-in motor and a brake unit (22,21) that is driven by an electric signal.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the suspension arrangement of FR '231 in view of EP '684 so as to provide a brake unit provided with the wheel and driven by an electric signal as taught by Zetterstrom since braking of a wheel is necessary and the

arrangement of Zetterstrom provides compact and efficient manner of providing a brake unit on a wheel having a wheel-in electric motor.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over FR '231 in view of EP '684 as applied to claims 1,8 and 13-15 above, and further in view of Wilcox et al. (USPN 6,267,196).

FR '231 in view of EP '684 does not disclose control of a vehicle posture by controlling the torque and speed of the electric motors.

Wilcox et al. discloses (see col. 5, line 60 – col. 6, line 17, at least) the control of the vehicle posture (which includes the raising of the vehicle) by increasing the torque/speed of the motor/wheel to change the vehicle posture by raising (or lowering) the longitudinal suspension arms. This control would likely be done "according to a state of a road surface".

It would have obvious to one of ordinary skill in the art at the time the invention was made to use the arrangement of FR '231 in view of EP '684 in a manner as taught by Wilcox et al. so as to raise or lower the vehicle as desired for increased ability to traverse rough terrain.

Allowable Subject Matter

Claim 11 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Laurent et al. (USPN 6,113,119), Wendl et al. (USPN 6,722,459), Lossman (USPN 3,195,919), Tuan (USPN 5,597,175), Charaudeau et al. (USPN 6,708,094), Yeh et al. (USPN 5,180,025), Hewko et al. (USPN 5,087,229), Anderson (USPN 4,063,611), Ajiro et al. (USPUB 2004/0112657), Bowen (USPUB 2004/0112656), Miller et al. (USPN 5,441,298), Matsuoka (USPN 5,074,581).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George D. Spisich whose telephone number is (571) 272-6676. The examiner can normally be reached on Monday-Friday 9:00 to 6:30 except alt. Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson can be reached on (571) 272-6669. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

George D. Spisich
Sept. 5, 2006

9/14/06

PAUL N. DICKSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600